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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/935,991	08/23/2001	Jagannath Das	029034/281613 (INPC-102)	1338
909	7590	08/26/2004	EXAMINER	
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			ILDEBRANDO, CHRISTINA A	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,991

Applicant(s)

DAS ET AL.

Examiner

Christina Ildebrando

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19, 21-39 and 50-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19, 21-23, 26-36 and 50-54 is/are allowed.
- 6) ☒ Claim(s) 24, 25 and 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on July 7, 2004 has been entered.

Allowable Subject Matter

2. The indicated allowability of claims 24-25 and 37-39 is withdrawn in view of the newly discovered reference to Beck et al. (US 5,403,800) and Plank et al. (US 4,341,748). Rejections based on the newly cited reference(s) follow.
3. Claims 1-19, 21-23, 26-36, and 50-54 are allowed.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al. in view of Plank et al. and Felder et al.

Beck et al. (US 5,602,066) discloses a method for producing a selectivated zeolite catalyst. The method comprises the steps of: (a) contacting a catalyst comprising an intermediate pore size zeolite, such as ZSM-5, with an organosilicon compound under conditions sufficient to deposit a siliceous material on the catalyst; (b) calcining the organosilicon containing material in an oxygen containing atmosphere under conditions sufficient to remove organic material therefrom and leave the siliceous material on the catalyst; (c) directly washing the catalyst from step (b) with water; and (d) drying the washed catalyst from step (c) (columns 17-18, claim 1). It is taught that steps (a) and (b) are repeated at least once and further that step (c) is repeated at least once (column 18, claims 8 and 9, column 2, lines 43-45, and column 4, lines 50-56).

With regards to step (a) above, the organosilicon compound may be water soluble or water insoluble (column 4, lines 55-65 and column 5, lines 60-65). Examples of suitable compounds include silanes (column 5, lines 25-30). The organosilicon compound is present in the form of an organic carrier or water (column 4, lines 55-65). The use of 7.8wt% of organosilicon compound in decane is exemplified (column 15, Example 1). In an example, following step (a), Beck et al. teaches that the solvent is stripped (Example 1).

With regard to steps (c) and (d), Beck et al. teaches washing the catalyst in water, followed by drying and calcination at a temperature of at least 200 degrees C for at least one hour to more completely remove the residue of the liquid medium used to

treat the catalyst (column 3, lines 40-50). In an example, Beck et al. teaches that washed extrudates are dried for 4 hours at 120 degrees C and calcined at 300 degrees C for 2 hours (column 15, Example 3).

Beck et al. further teaches that the present catalyst may include a binder material such as alumina, or silica, or alumina in combination with silica (column 14, lines 42-56).

Beck et al. differs from the instant claims in that Beck et al. does not teach specifically that the solvent is recovered or that the zeolite comprises Ga-ZSM-5 or Ga-Al-ZSM-5.

Plank et al. (US 4,341,748) teaches that ZSM-5 may be prepared having Ga in the ratios required by the instant claims. Refer to columns 2-3.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the Ga-ZSM-5 or Ga-Al-ZSM-5 taught by Plank et al. in the process taught by Beck et al. Beck et al. specifically refers to the zeolites taught by Plank et al. (refer to column 3, lines 55-65 of '066) as suitable, thereby giving one of ordinary skill motivation to use either, with a reasonable expectation of success.

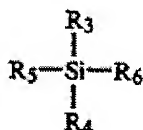
With respect to the solvent recovery, Felder et al. (*Elementary Principles of Chemical Processes*) teaches any reactant that is fed into a system and is unused represents wasted money. The reference proposed that if one could find a way to separate most or all of the unconsumed reactant from the product stream, one could then recycle the unconsumed reactance back to the reactor. While one would have to pay for the separation and recycle equipment, this would be offset by having to purchase less fresh reactant. Refer to page 106.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the method Beck et al. in light of the teachings of Felder et al. to recover the solvent stripped from the selectivated catalyst such as for recycle. One would have been motivated to do so because of the teaching by Felder et al. that such a recovery/recycle is conventional and would result in a more economical process, i.e. one would not continually need to supply fresh solvent to the selectivation process.

6. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al. '800 in view of Felder et al.

Beck et al. (US 5,403,800) discloses a method for producing a selectivated zeolite catalyst. The method comprises the steps of contacting a catalyst comprising an intermediate pore size zeolite, such as ZSM-5, with an organosilicon compound in a solvent under conditions sufficient to deposit a siliceous material on the catalyst, calcining the organosilicon containing material in an oxygen containing atmosphere under conditions sufficient to remove organic material therefrom and leave the siliceous material on the catalyst (columns 5, lines 10-35). It is taught that contacting with the organosilicon compound are repeated at least once (column 5, lines 20-30).

The organosilicon compound may be water soluble or water insoluble (column 5-6). Examples of suitable compounds include silanes (column 6, lines 25-45). The silanes are characterized by the following general formula:



where R₃, R₄, R₅ and R₆ are independently selected from the group consisting of hydrogen, hydroxyl, halogen, alkyl, halogenated alkyl, alkoxy, aryl, halogenated aryl, aralkyl, halogenated aralkyl, alkaryl, halogenated alkaryl and organoamine groups. Most preferably R₃, R₄, R₅ and R₆ are independently selected from the group consisting of —N(CH₃)₃, —N(C₂H₅)₃ and —N(C₃H₇)₃. Mixtures of these compounds may also be used.

(see column 6, lines 30-46).

The difference between the reference and the instant claims is that the reference does not disclose the specific silanes required by the claims or that the solvent is recovered.

The reference disclosed a generic chemical formula and substituents which would meet the instant claims. The claims differ from the reference by reciting a specific species and a more limited genus than the reference. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to select any of the species taught by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole.

With respect to the solvent recovery, Felder et al. (*Elementary Principles of Chemical Processes*) teaches any reactant that is fed into a system and is unused represents wasted money. The reference proposed that if one could find a way to separate most or all of the unconsumed reactant from the product stream, one could

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then recycle the unconsumed reactance back to the reactor. While one would have to pay for the separation and recycle equipment, this would be offset by having to purchase less fresh reactant. Refer to page 106.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the method Beck et al. in light of the teachings of Felder et al. to recover the solvent stripped from the selectivated catalyst such as for recycle. One would have been motivated to do so because of the teaching by Felder et al. that such a recovery/recycle is conventional and would result in a more economical process, i.e. one would not continually need to supply fresh solvent to the selectivation process.

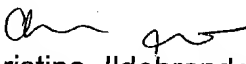
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Ildebrando whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Christina Ildebrando
Patent Examiner
Art Unit 1725

8/23/04

CAI
August 23, 2004